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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/520,915	01/07/2005	Satoshi Mizutani	112857-491	5221

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EXAMINER	
CHUO, TONY SHENG HSIANG	
ART UNIT	PAPER NUMBER
1795	
MAIL DATE	DELIVERY MODE
03/24/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/520,915	MIZUTANI ET AL.	
	Examiner	Art Unit	
	Tony Chuo	1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 January 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *41,42,44,45,47-64,66,67 and 69-80* is/are pending in the application.

4a) Of the above claim(s) *50-62 and 72-80* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *41,42,44,45,47-49,63,64,66,67 and 69-71* is/are rejected.

7)☒ Claim(s) *44 and 66* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *07 January 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. Claims 41, 42, 44, 45, 47-64, 66, 67, and 69-80 are currently pending. Claims 43, 46, 65, and 68 have been cancelled. Claims 50-62 and 72-80 are withdrawn from further consideration as being drawn to a non-elected invention. The previous 112, 2nd paragraph rejection of claims 46 and 68 is withdrawn. The amended claims do not overcome the previously stated provisional obviousness double patenting rejections. The amended claims do overcome the previously stated 102 rejections. However, upon further consideration, claims 41, 42, 44, 45, 47-49, 63, 64, 66, 67, and 69-71 are rejected under the following new 103 rejections. This action is made FINAL as necessitated by the amendment.

Double Patenting

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to

be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

3. Claim 63 is provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 7, and 8 of copending Application No. 11/267,641. Although the conflicting claims are not identical, they are not patentably distinct from each other because the subject matter of claim 63 is fully anticipated by the claims of copending Application No. 11/267,641.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

4. Claims 41, 42, 63, and 64 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-3, 9-11, 18, 19, 26, and 27 of copending Application No. 12/026,594. Although the conflicting claims are not identical, they are not patentably distinct from each other because the subject matter of claims 41, 42, 63, and 64 is fully anticipated by the claims of copending Application No. 12/026,594.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

5. Claims 41, 49, 63, and 71 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 2, 7, and 8 of copending Application No. 11/268,010. Although the conflicting claims are not identical, they are not patentably distinct from each other because the subject

matter of claims 41, 49, 63, and 71 is fully anticipated by the claims of copending Application No. 11/268,010.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

6. Claim 63 is provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 4, 7, 9, and 10 of copending Application No. 11/267,116. Although the conflicting claims are not identical, they are not patentably distinct from each other because the subject matter of claim 63 is fully anticipated by the claims of copending Application No. 11/267,116.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

7. Claims 41, 42, 63, and 64 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-3 and 10-12 of copending Application No. 11/225,540. Although the conflicting claims are not identical, they are not patentably distinct from each other because the subject matter of claims 41, 42, 63, and 64 is fully anticipated by the claims of copending Application No. 11/225,540.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Specification

8. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. It is suggested that the title be amended to remain consistent with the terminology used in the specification such as anode material and battery.

Claim Objections

9. Claims 44 and 66 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claims 44 and 66 each depend on a cancelled claim. For purpose of compact prosecution, claim 44 is construed as depending on claim 41 and claim 66 is construed as depending on claim 63.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11. Claims 41, 42, 47-49, 63, 64, and 69-71 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawakami et al (JP 2000-311681).

The Kawakami reference discloses a battery comprising: a positive electrode, a negative electrode, and an electrolyte, wherein the negative electrode contains a negative electrode material having a reaction phase containing tin (element capable of generating an intermetallic compound with lithium); (cobalt, nickel, iron, or copper); and carbon (See paragraph [0050],[0099]).

It also discloses a ratio of carbon in the reactant phase that is 0.8 wt% for $Sn_{40.5}Co_{53.9}C_{5.6}$, 3.9 wt% for $Sn_{1.1}Fe_{3.0}C_{1.0}$, and 1.4 wt% for $Sn_{59.9}Co_{30.2}C_{9.9}$ (See Tables 7, 8, 11, and 12).

It also discloses a specific surface area of 5.0 m^2/g (See paragraph [0047]).

It also discloses an average particle size of 10 μm or less (See paragraph [0047]).

Examiner's note: It is the position of the examiner that the property "A peak of carbon that is obtained in a region lower than about 284.5 eV by x-ray photoelectron spectroscopy" is inherent to the Kawakami negative electrode material because Kawakami discloses an alloy with a composition that is close enough that one would not expect a difference in properties. In addition, the Kawakami negative electrode is also formed by the same planet ball mill device.

However, Kawakami et al does not expressly teach a ratio of carbon in the reaction phase that ranges from about 5% by weight to about 50% by weight.

However, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the Kawakami negative electrode material to include a ratio of carbon in the reaction phase that ranges from about 5% by weight to about 50% by

weight because even if the range of prior art and the claimed range do not overlap, obviousness may still exist if the ranges are close enough that one would not expect a difference in properties (*In re Woodruff* 16 USPQ 2d 1934 (Fed. Cir. 1990)). In addition, there is no evidence of the criticality of the claimed range of carbon ratio in the reaction phase.

12. Claims 41, 42, 48,49, 63, 64, 70, and 71 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dahn et al (WO 01/48840).

The Dahn reference discloses a battery comprising: a positive electrode, a negative electrode, and an electrolyte, wherein the negative electrode contains a negative electrode material having a reaction phase containing tin (element capable of generating an intermetallic compound with lithium), manganese, and carbon ($SnMn_3C$) (See Example 1).

It also discloses a ratio of carbon that is 4 wt% as calculated from Example 1.

It also discloses a particle size that range from 2 μm to 30 μm (See claim 7]).

It also discloses crystalline grains that are no greater than 20 nanometers (See claim 8).

Examiner's note: It is the position of the examiner that the property "A peak of carbon that is obtained in a region lower than about 284.5 eV by x-ray photoelectron spectroscopy" is inherent property of the Dahn negative electrode material because Dahn discloses an alloy with a composition that is close enough that one would not expect a difference in properties. In addition, it is also formed by a similar ball mill device.

However, Dahn et al does not expressly teach a ratio of carbon in the reaction phase that ranges from about 5% by weight to about 50% by weight.

However, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the Dahn negative electrode material to include a ratio of carbon in the reaction phase that ranges from about 5% by weight to about 50% by weight because even if the range of prior art and the claimed range do not overlap, obviousness may still exist if the ranges are close enough that one would not expect a difference in properties (*In re Woodruff* 16 USPQ 2d 1934 (Fed. Cir. 1990)). In addition, there is no evidence of the criticality of the claimed range of carbon ratio in the reaction phase.

13. Claims 44, 45, 66, and 67 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawakami et al (JP 2000-311681). The Kawakami reference is applied to claims 41 and 63 for reasons stated above. In addition, Kawakami also discloses a negative electrode material that contains an alloy of tin, cobalt, carbon, and a fourth element (See Table 11, sample no. 20). It also discloses an element A that is a transition metal element selected from Cr, Mn, Fe, Co, Ni, Cu, Mo, Tc, Ru, Pd, Ag, Ir, Pt, Au, Ti, V, Y, Sc, Zr, Nb, Hf, Ta, and W (See paragraph [0033]). It also discloses an element X of the alloy that is selected from O, F, N, Mg, Ba, Sr, Ca, La, Ce, Si, Ge, C, P, B, Bi, Sb, Al, In, S, Se, Te, and Zn (See Abstract).

However, Kawakami et al does expressly teach a reaction phase that contains tin and at least one selected from the group consisting of zinc, indium, and silver; or a

reaction phase that contains at least one selected from the group consisting of elements from Group 4 to Group 6 of the periodic table.

However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to try to form an alloy from a finite number of identified elements that is used as an anode material with a reasonable expectation of success such as long cycle life, high capacity, and high energy density.

Response to Arguments

14. Applicant's arguments with respect to claims 41, 42, 44, 45, 47-49, 63, 64, 66, 67, and 69-71 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tony Chuo whose telephone number is (571)272-0717. The examiner can normally be reached on M-F, 9:00AM to 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TC

/Jonathan Crepeau/
Primary Examiner, Art Unit 1795